

REMARKS

Substitute Specification and Abstract

A Substitute Specification and New Abstract are filed as part of this Response. The Specification has been amended to include a "Cross-Reference to Related Applications" and headings for the other various parts of the Application and to number its paragraphs. Unnecessary reference numerals have been deleted from the Abstract.

Reconsideration and withdrawal of all outstanding rejections and objections are respectfully requested in view of the amendments presented herein and the following remarks.

Objections to Claims

Claims 23, 25-29, 31-34, 36, 37, 39-41, 43, 46-50, and 52-55 have been indicated to be drawn to allowable subject matter and to be allowable subject to overcoming the following formal objections.

All of the pending claims have been objected-to as being in formal because they lack wording such as "comprising" or "consisting of". To address those objections, all of the pending claims have been amended to include wording such as "comprising", "comprises", "further comprises" and/or "wherein" as customarily used in U.S. patent practice in lieu of the previously used conventional European claiming format expressions such as "characterized in that".

Claims 23, 25-29, 31-34, 36, 37, 39-41, 43, 46-50, and 52-55 have also been objected-to as being dependent from a rejected base claim. In order to address those objections, claims 23, 25, 26, 28, 29, 31, 32, 36, 37, 40, 41, 43, 46, 47, 49, 50, 52, and 53 have all been amended into independent form incorporating all of the limitations of their respective base claims and any intervening claims. Since objected-to claims to 27, 33, 34,

39, 48, 54 and 55 all depend either directly or indirectly from a respective one of the aforementioned independent claims, the objections as to those dependent claims have also been overcome.

In view of these amendments, all outstanding objections to the claims are respectfully submitted to have been overcome. Reconsideration and withdrawal of all objections are respectfully solicited.

Rejections over Prior Art

Claims 22, 24, 30, 35, 38, 42, 44, 45 and 51 have been rejected under 35 USC Section 102(b) as allegedly anticipated by Keller '247.

Keller '247 relates to an optical lens support (12) used for temporarily holding a lens (10) during rotational processing such as spin coating. The support (12) includes a base (13) which carries at least three bearing studs (14A, 14B) for gripping the lens (10) by its edge. At least one of the studs is fixed relative the base (13) while at least one other is carried by an elastically deformable arm (15) affixed to the base 13. As disclosed, the elastically deformable arm 15 may take the form of a leaf spring, a free end (14B) of which grips the edge of lens (10).

In addition to minor amendments to improve grammar and idiom as well as to eliminate usage of the phrase "characterized in that" as discussed above, independent claims 22, 35 and 42 have all been amended to patentably distinguish over the prior art of record, including without limitation Keller '247 by expressly reciting that in that in the claimed device, the optical element is coupled to the mount via at least one connecting member "and a glued connection" and that the at least one spring element in claims 35 and 42 "molding element" compensate the weight force "to mitigate creeping associated with the glued connection". Support for this amendment may be found for example, in

Fig. 1 and the associated description at page 7 lines 12-17 and page 7 lines 34-38 which show the connection cement (5) or gluing points (5), use of the same reference numeral (5) showing that the term "glued" used interchangeably with cemented in the application.

"Creep" refers to the time dependent strain occurring when a material is subjected to an applied stress. Keller '247, does not recognize, or purport to solve, the problems of preventing an optical element from creeping over prolonged periods of time, or avoiding distortion of the optical element due to such creep. As the Examiner points out in the third paragraph of page 3 of the Office Action, the pegs (i.e., bearing studs 14A) of Keller '247, which are described in the patent as "fixed," are "unmovable". The Keller '247 patent does not relate to a mount intended for holding an optical element in its operative location within a projection objective in a highly precise orientation with respect to a specified mount axis over prolonged period of time. Keller '247 merely discloses a temporary fixture for supporting an optical element during a spin coating production process during which the lens is rotated at speeds greater than 500 RPM in order to spread a thin layer of coating material over the surface of the lens (see Keller '247 at col. 1 lines 54-59; col. 2 lines 12-15 and col. 2 lines 39-42). There is no cement (5), susceptible to creep, joining the optical element to its mount in Keller '247. A person of ordinary skill in the art would not find Keller '247 at all relevant or helpful to addressing the problem of preventing creeping of an optical element since the optical element (10) in Keller '247 is not supported on the mount via any type of glued connection.

Claims 22 and 35 further patentably distinguish over Keller '247 by reciting a relationship between the supporting characteristics of the connecting member(s)¹ and the dead weight of at least the optical element. Claims 22, 35 and 42 in their present form

¹ In the case of claim 22, as supported, e.g., by Fig. 1 and the associated description of the embodiment of Fig. 1, the particular species of holding element (7) recited in claim 22 is "at least one spring element."

now specify that the at least one “spring element” in the case of claim 22 and, in the case of claims 35 and 42 “holding element”, act to compensate “a weight force representing the dead weight of at least the optical element” (emphasis added). No such relationship is shown or expressly or impliedly taught or suggest by or in light of Keller ‘247 or any of the other prior art of record. To the contrary, Keller ‘247 at col. 7 lines 6-14 teaches that the function of the “elastically deformably arm (15)” is to exert a spring force on the optical lens (10) to cause it “to locate positively against the fixed bearing studs (14A)” by exerting “a radial force” “from 1 to 10N” (i.e. Newtons) “and preferably on the order of 2N”.

Since Keller ‘247 specifies the spring force only in absolute terms rather than defining it with respect to the weight of the lens 10 or any other dead weight, it cannot reasonably be construed as disclosing or rendering obvious, a device as claimed in claims 22, 35 and 42 in which the combined supporting characteristics of the at least one holding element (or spring element) and the connecting elements are expressly recited in terms which are relative to the dead weight of at least the optical element, namely as acting to compensate for a weight force representing that dead weight.

As pointed out above, the elastically deformable arm (15) of Keller ‘247 must exert a radial force which is at least large enough to hold lens (10) securely in place as the lens (10) undergoes rotation at over 500 RPM as it is being spin coated. Clearly, the spring force of arm (15) does not compensate for “dead weight” and could not serve its intended purpose if it did so. The arm (15) of Keller ‘247 must resist a *dynamic* force namely, centrifugal force generated by the spinning. If the force applied by arm (15) was one which was merely adequate to compensate for the “dead weight” of the lens (“dead weight” by definition a *static* condition), imbalance could allow the lens (10) to

fly off of the mount during such rapid rotation. Thus, the arm (15) of Keller '247 must exert a force which is at least adequate to resist the maximum centrifugal force which could be encountered under any normal operating condition at maximum rotational speed.

In view of the foregoing, it is respectfully submitted that claims 22, 35 and 42 are also patentable over Keller '247 and all other prior art of record. Reconsideration and withdrawal of the rejections of those claims is requested.

Claim 24 depends from claim 22, claim 38 depends from claim 35, and claims 44, 45 and 51 each depend from claim 42. Those dependent claims are therefore patentable over the prior art of record for at least the same reasons noted above concerning their respective base claims. Reconsideration and withdrawal of the rejections of claims 24, 38, 44, 45 and 51 are therefore respectfully requested.

Conclusion

In view of the foregoing it is believed that all the objections and rejections of record have been overcome and that pending claims in their present form are patentable over the prior art of record and are in condition for allowance in their present form.

Respectfully submitted,

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